

What Is Claimed Is:

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Sub A³
5 1. An isolated polynucleotide encoding human phosphatidic acid phosphatase wherein said polynucleotide encodes a protein comprising a polypeptide sequence selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, and (iii) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

10 2. An isolated human phosphatidic acid phosphatase protein, wherein said protein comprises a polypeptide sequence selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, and (iii) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

15 3. A method of preparing a human phosphatidic acid phosphatase- β protein comprising the steps of (i) transforming a host cell with an expression vector comprising a polynucleotide encoding human phosphatidic acid phosphatase, (ii) culturing said transformed host cells which express said protein and (iii) isolating said protein. ✓

20 4. The method of claim 3, wherein said polynucleotide encoding human phosphatidic acid is selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, (iii) the sequence at amino acid number 1 to amino acid number 311 in Figure 3, and (iv) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

Sub A⁴
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A method of dephosphorylating a substrate comprising contacting said substrate with an effective amount of isolated human phosphatidic acid phosphatase protein such that said protein catalyzes the dephosphorylation of said substrate.

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6. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 284 in Figure 1₁ (Seq ID NO: 2)

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7. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 285 in Figure 2₁ (SEQ ID NO: 4)

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8. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 311 in Figure 3₁ (SEQ ID NO: 6)

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9. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 276 in Figure 4₁ (SEQ ID NO: 8)

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10. The method of claim 5, wherein said substrate is selected from the group consisting of phosphatidic acid, lysophosphatidic acid, ceramide 1-phosphate, and sphingosine 1-phosphate.

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11. The method of claim 5, wherein said contacting is effected *in vitro*, and further comprises the step of isolating said dephosphorylated substrate.

12. The method of claim 5, wherein said contacting step occurs *in vivo* and is effected by the administration of said human phosphatidic acid phosphatase to a mammal in need thereof.

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